REVISION OF THE GENUS BRACHYCOME CASS.

PART II, NEW ZEALAND SPECIES.

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(Twenty-four Text-figures.)

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INTRODUCTION.

The genus *Brachycome* was first recorded from New Zealand by J. D. Hooker (1853) with the description of *B. radicata*. Since that date extensive exploration has shown that the genus is widely distributed in that country, particularly in the South Island.

In Part I of this paper (these PROCEEDINGS, lxxiii, 142–241) the suggestion was put forward that this genus had already colonized New Zealand prior to its connection being severed with the Australian mainland. This hypothesis would account for the fact that all species belong to the subgenus *Eubrachycome*, there being no representatives of the subgenus *Metabrachycome* in New Zealand. If the present areas occupied by species be any guide to their origin, it would appear that it was *B. radicata*, or its ancestral form, which was the original colonist and that it spread widely before the land mass separated into North and South Islands. *B. Sinclairii*, on the other hand, had it originated later in the South Island, would have been prevented from migrating both to the North Island and to Stewart Island by effective barriers of water. No specimens of *B. Sinclairii* have been examined from either Stewart or North Islands, though the possibility cannot be overlooked that it exists but has not been collected there. Should this prove to be the case, it would go a long way towards explaining the presence on Three Kings Islands of this species. Up to date no specimens of *Brachycome* have been collected in the North Island north of the Kaimanawa Range.

The similarity in the flora and fauna between the islands of Subantarctica and New Zealand has been the occasion for comment by various authors. Chiltern* (1909) points out "the flora of the islands to the south of New Zealand is in its main characters and alliances nothing more than a branch of the New Zealand flora, to some extent changed and modified by long ages of isolation". He also remarks that Campbell and Auckland Islands "are not oceanic islands, but once formed part of a continental area connecting them with the present mainland of New Zealand". It is therefore interesting to examine specimens of *B. radicata* from Campbell Island. Unfortunately these are in flower only, but the very young fruit present are densely glandular, and the habit agrees with that of *B. radicata* from the mainland. It is more than likely that this species occurs also on Auckland and Macquarie Islands. This record supports the view that *B. radicata* was the original species of *Brachycome* in New Zealand, but it is remarkable that in isolation on Campbell Island it has followed an identical line of development to that pertaining in New Zealand. *B. linearis* has been collected only from the shores of Lake Te Anau. In the glabrous and smooth nature of the fruit it appears to be most closely allied to *B. Sinclairii*, but the affinity is not close.

NOMENCLATURE.

The general principles formulated in Part I of this paper are followed here. It is regrettable that both the well-known specific epithets "*odorata*" and "*Thomsonii*" must be abandoned in favour of a little-known but earlier synonym.

In the past there was a strong tendency for botanists to regard each species and variety as static. It is now coming to be generally recognized that each category is made up of living individuals which, since they are living, have an inherent capacity for variation, and once that capacity is lost the population is in danger of dying out in a changing environment. The former practice of honouring each variation with a separate name adds confusion rather than clarity to taxonomic work, and in this paper, separate names are only applied to units of a discontinuous series. Within each unit limits of variation are established within which the individuals of the particular population oscillate about a hypothetical central point to which the term "typical" is applied.

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* The Subantarctic Islands of New Zealand. Vol. II, pp. 467 and 796.

Specimens Examined.

Several hundred specimens have been critically examined as a result of the courtesy of the Directors of various public herbaria who lent their collections for this purpose. These specimens are all listed under appropriate species, the source in each case being indicated as follows:

Auckland Institute and Museum (A).
Canterbury Museum, Christchurch (C).
Dominion Museum, Wellington (W).
National Herbarium, Melbourne (MEL).
National Herbarium, Sydney (NSW).
Brisbane Herbarium (BRI).

Specimens in young flower only, are indicated by an asterisk, but microscopic characters of the very young fruit are such that little doubt exists as to their correct determination.

Taxonomy.

Compositae, Tribe *Asteroidea*.

Brachycome Cass., *Dict. Sci. Nat.*, 37 (1825), 491.
Subgenus *Eubrachycome* Davis.
Synonymy and definition of the genus as in Part I.

Key to the Species.

1. Glandular branching perennials up to 25·6 cm. high, with cauline leaves which are often clustered basally.
    2. Lower leaves oblanceolate or spathulate and toothed. Fruit oblong-cuneate, slightly flattened, more or less densely covered with short glandular hairs. Pappus conspicuous .... 1. *B. radicata*
    2*. Lower leaves spathulate and entire to pinnatifid or pinnatipartite. Fruit narrow-obovate, flat, glabrous. Pappus conspicuous, deciduous .... 2. *B. Sinclairii*
1*. Glabrous annuals not more than 3·4 cm. high. Leaves radical, linear to narrow lanceolate, entire or with a single small tooth. Fruit narrow oblong, glabrous, turgid. Pappus microscopic and deciduous .... 3. *B. linearis*

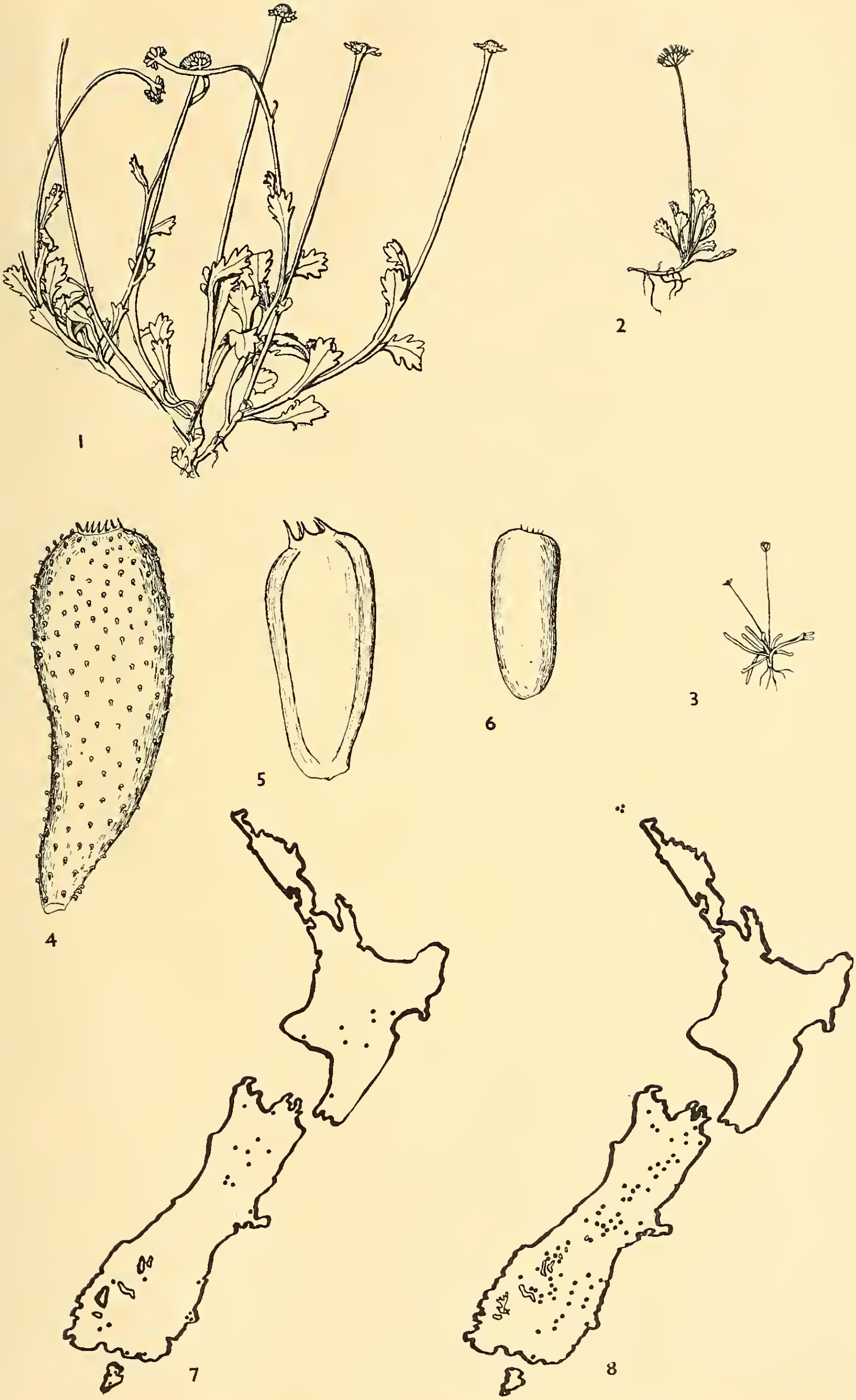
1. BRACHYCOME RADICATA Hook. f., Fl. N.Z., I (1853), 127.

(Text-figs. 1, 4, 7.)

Synonymy: *B. radicata* Hook. f., var. *α*, Fl. N.Z., I (1853), 127.
B. odorata Hook. f., Handb. N.Z. Fl. (1864), 138.
B. Thomsonii T. Kirk, *Trans. N.Z. Inst.*, xvi (1884), 372.
B. Thomsonii var. *membracifolia* T. Kirk, St. Fl. N.Z. (1899), 261.
B. Thomsonii var. *dubia* T. Kirk, St. Fl. N.Z. (1899), 261.
B. polita T. Kirk, St. Fl. N.Z. (1899), 261.
B. Thomsonii var. *polita* Cheesem., Fl. N.Z. (1906), 277.

Haptotype: Patea, Wellington Province. Col. 1732. W. Colenso (A).

Weakly erect to erect stoloniferous perennials up to 25·6 cm. high, branching from the base, more or less densely glandular all over, rarely almost glabrous. Lower cauline leaves oblanceolate or spathulate in gross outline, basally attenuate into a petiole, up to 9·5 cm. long, 2·3 cm. broad, with obtuse to acute teeth. Upper leaves sessile, often becoming entire, and finally scale-like. Radical leaves present on young plants and similar to lower cauline. Peduncles leafy and terminate branches, scape-like when solitary. *Inflorescences* usually 1 or 2, but up to 6 may be present, 7–13 mm. diameter. *Involucral bracts* 18–24, 3·5–4·5 mm. long, 1·5–2 mm. broad, broadly oblanceolate, apex obtuse to acute with torn-ciliate margins and usually bearing short glandular hairs on



Text-figures 1-8.

1. *B. radicata.* Habit. × ½. 2. *B. Sinclairii.* Habit. × ½. 3. *B. linearis.* Habit. × 1. 4. *B. radicata.* Fruit. × 22. 5. *B. Sinclairii.* Fruit. × 22. 6. *B. linearis.* Fruit × 45. 7. Distribution of *B. radicata.* 8. Distribution of *B. Sinclairii* (●) and *B. linearis* (×).

the outer surface. *Ray florets* 14–30, 3–5 mm. long, 1·1–1·5 mm. broad, apparently always white. *Receptacle* 3·5–7 mm. broad, 1·7–5 mm. high, hemispherical. *Fruit* 2–3·5 mm. long, 0·9–1·4 mm. broad, dark brown to black, oblong-cuneate, slightly flattened, more or less densely covered with short glandular hairs. Pappus conspicuous, straw-coloured, bristles of irregular length and often spreading.

Range: North Island south of Kaimanawa Range, and widespread in both South Island and Stewart Island; also Windlass Bay, Campbell Island.

Specimens examined: *North Island*: Tutira Run, Hawke Bay, H. Guthrie Smith (A); Kaweka Mt., 2,500 ft., H. Tryon (W, BRI); Kaimanawa Range, 1.1914, B. C. Aston (A, W, C); Kaimanawa Range, 1.1914, D. Petrie (W); Ruahine Range, 1.1914, B. C. Aston (W); Waimarino Co., "in forest", 1.1918, H. Carse (W); Matatoke Gorge, 1.1918, H. B. Matthews and H. Carse (A); Wanganui (W); Patea, Wellington Province, W. Colenso n. 1732 (Haptotype of *B. radicata* var. a, A); Mt. Holdsworth, Tararua Range, 3,000-4,000 ft., W. Townson (A).

South Island: Cobb Valley, N. W. Nelson, T. G. Gibbs (A); Mt. Arthur plateau, Nelson, 4,000 ft., 1.1886, T. F. Cheeseman (lectotype and 2 lectoparatypes of *B. Thomsonii* var. *membracifolia*, A; lectoparatype, W); Mt. Arthur, Nelson, J. Adams (A); W. Nelson, W. Townson (C); Nelson, W. Townson (A); Mt. Murchison, W. Townson (W); Mt. Murchison, 3,000 ft., W. Townson (A); Brunner Range, 3,000-4,000 ft., W. Townson (A); Tarndale, Nothofagus forest, 3,800 ft., L. Cockayne (W); W. region of Amuri Co., W. G. Morrison (W); Mt. Miro Miro, 19.1.1919, L. Cockayne (W); Mt. Miro Miro, 3,500 ft., D. Petrie (W); Arthur's Pass, 3,000 ft., T. Kirk (W); Arthur's Pass, T. Kirk (lectotype of *B. polita* and *B. Thomsonii* var. *polita* (A); Arthur's Pass, "in moist ground near Lake Misery", 26.1.1898, L. Cockayne (W, A); Arthur's Pass, T. F. Cheeseman (W); Arthur's Pass, 2.1919, A. Wall (C); margin of bush, Mingha Valley, 21.1.1932 (C); near Lyttleton, "rocky stations", 1.1908, D. Petrie (W); Oamaru Bluff, D. Petrie (W); Cape Whanbrow, T. Kirk (lectotype and lectoparatype of *B. Thomsonii* var. *dubia*, A; lectoparatype, W); Mt. Pisa Plateau, 5,500 ft., "soil on rock", 9.3.1921, L. Cockayne (W); Mt. Pisa Plateau, 9.3.1921, W. R. Reid (A); *Upper Routeburn, 4,000 ft., 7.5.1921, L. Cockayne (A); Otago Penin., 1.2.1920 (W); Dunedin, D. Petrie (W); near Dunedin, between Otago Hbr. Isthmus and Green Is., 300 ft., D. Petrie (W); Green Is., "sea cliffs", D. Petrie (W); Black Head, St. Clair, Dunedin, 1.1920, A. Wall (C); Black Head, Dunedin, A. Wall (A); Mt. Cleghearn, W. of Waiau R., Southland, 1.1914, I. Crosby Smith (W); Takitimo Mts., "moist slopes in tussock", 30.12.1912, D. Petrie (W); Bluff Hill, Southland, 21.1.1913, D. Petrie (W); Fortrose, "near sea", 4.1.1913, D. Petrie (C); Fortrose, "on clay near sea cliffs", 4.1.1913, D. Petrie (W); Fortrose, 1.1913, D. Petrie (A).

Stewart Island: Mason Bay, 1.1907, L. Cockayne (W); Mason Bay, "open places amongst scrub", 30.1.1907 (W); Mason Bay, 1910-1911, J. W. Murdoch (W); Mason Bay, 15-18, 1.1940, J. E. Attwood (A); Paterson Inlet, Stewart Is., G. M. Thomson (A, C); near Pegasus Sound, 1.1877, D. Petrie (W); Sydney Cove, 1.1882, T. Kirk (W); Stewart Island, 1.1880, G. M. Thomson (BRI); Stewart Island, 12.1883, T. Kirk (W); Stewart Is., J. W. Murdoch (W); Stewart Is., T. Kirk (lectotype and three lectoparatypes of *B. Thomsonii*, A; two lectoparatypes, MEL).

With the exception of var. *minima* Kirk ("Dog Is."), syntype material of all varieties of *B. Thomsonii* has been located in New Zealand and lectotypes nominated.

B. radicata var. *a* was described by Hooker from three specimens ("Northern Is., Cunningham, Colenso; Middle Is. Lyall"), and in 1864 he described *B. odorata* with the comment "the *B. radicata* of Fl. N.Z. was founded partly on this, and partly on specimens of a *Brachycome* in A. Cunningham's herbarium, which I am now convinced were introduced there by accident, and belong to an Australian species. The name of *B. radicata* had therefore better be abandoned".

B. odorata was accordingly described and the type locality given as "Patea Village, Colonso", a somewhat more detailed locality record than that quoted in connection with *B. radicata*, but apparently based on the same specimen. Attempts to trace syntypes of *B. radicata* have only been successful to the extent of locating a specimen collected by Colenso bearing the type data in the Auckland Museum. Since, however, there must remain some doubt as to whether Hooker actually handled this particular specimen, it has been nominated haptotype both of *B. radicata* and *B. odorata*. It is unfortunate that all Hooker's syntypes are no longer extant, but in the event of one belonging to another species, as Hooker suspected, the validly published name cannot be abandoned for that reason alone, *B. radicata* is accordingly redescribed and the name *B. odorata* rejected as a later synonym.

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* *Campbell Is.*: Cliffs above Windlass Bay, 10.12.1944, K. L. Oliver (W); cliffs, Windlass Bay, 12.1.1945, K. L. Oliver (W).

Specimens available show a continuous variation of vegetative features, and many have been examined which occupy intermediate positions between varieties. Since the practice of naming variations in a continuous series is not upheld by the present author, these varieties, having probably an ecological basis, are abandoned. In his description of *B. Thomsonii* var. *minima* Kirk records "Flower heads smaller, ray florets wanting. Habitat Dog Island". Either the ray florets were overlooked or this was a specimen of *Lagenophora*, and since no syntype specimens have been traced this variety is not listed in the synonymy of *B. radicata*. Syntype material of *B. polita* has been located and type selection made. These specimens fall well within the new specific limits of *B. radicata* except that the pappus recorded by Kirk as being absent is certainly present but tends to be dehiscent with age.

Variation within this species is not great, the most striking feature being that of the indumentum. The vast majority of specimens are more or less densely glandular, certain of them being macroscopically so. However, sparsely glandular plants are not uncommon, and a few were seen from the Otago district which were glabrous. The degree of development of the indumentum cannot be correlated with either altitude or geographical position and probably has a genetical basis. All specimens examined from Stewart Is. were densely glandular, which tends to support this latter view. Variation in size and shape of leaves is no more than would be expected in a species occupying a variety of habitats in a relatively extensive range. In this connection it is interesting to note Cheesman's comments (1925) following his redescriptions of the following species:

B. odorata: ". . . I am inclined to think that this is not separable from *B. Thomsonii*."

B. Thomsonii: ". . . A most variable plant, only separable from *B. odorata* by the larger size, coarser habit, and larger heads."

The strong fragrance of this species has been commented on by various authors but no information is available as to the position of the glands responsible.

2. BRACHYCOME SINCLAIRII Hook. f. Handb. N.Z. Fl. (1864), 137.

(Text-figs. 2, 5, 8.)

Synonymy: *B. radicata* var. β Hook. f., Fl. Nov. Zel., I (1853), 127.
B. Sinclairii var. α Hook. f., Handb. N.Z. Fl. (1864), 137.
B. Sinclairii var. β Hook. f., Handb. N.Z. Fl. (1864), 137.
B. Sinclairii var. γ Hook. f., Handb. N.Z. Fl. (1864), 137.
B. pinnata Hook. f. Handb. N.Z. Fl. (1864), 138.
B. Sinclairii Hook. f. var. *montana* T. Kirk, St. Fl. N.Z. (1899).

Weakly erect to erect stoloniferous perennials up to 26 cm. high with a glandular hairy indumentum, rarely almost glabrous. Leaves clustered basally, up to 4·2 cm. long, 1·1 cm. broad, very variable in shape, from spathulate and entire to pinnatifid or pinnatipartite. Segments obtuse to acute, usually regular. Blade passes abruptly into the petiole, or the leaf may appear sessile. *Peduncles* scape-like, naked or with a single bract, usually densely glandular distally. *Inflorescence* 0·9–1 cm. diameter, usually 1 or 2 present, rarely 8. *Involucral bracts* 16–34, 3·5–5·5 mm. long, 1·2–1·5 mm. broad, lanceolate, glandular on outer surface, obtuse to acute, with torn ciliate margins. *Ray florets* 25–39, 5–9 mm. long, 1·2 mm. broad, apparently always white. *Receptacle* 2·5 mm. diameter, 1·4 mm. high, hemispherical. *Fruit* 1·7–2·3 mm. long, 0·9–1·1 mm. broad, narrow–obovate, glabrous, flat, with narrow smooth margins, dark brown. Pappus conspicuous, deciduous.

Range: Widespread throughout the South Island, otherwise only recorded from Three Kings Islands.

Specimens examined: *Three Kings Is. (W).

South Island: *Mt. Arthur, 3,000 ft., "in Beech forest", 1.1.1934, E. M. Heine (W); *Mt. Arthur Plateau, 1.1886, T. F. Cheeseman (A); Mt. Owen, 4,500 ft., 1.1882, T. F. Cheeseman (A); Mt. Owen, "about 4,500 ft.", W. Townson (W, C); Mt. Owen, W. Townson (A); *Wairaw Valley, 4,000 ft., 1.1878, T. F. Cheeseman (A); Whites Bay, 18.1.1880, F. M. Reader (MEL); Awatere Valley, 12.1926, I. M. McMahon (C); Ward, "limestone hills near coast", 12.1915, B. C. Aston (W); *Ward Hills (W); Camden Ra., Kiakoura Mts., 2.1930, A. Wall (C); Clarence Valley, 3,800 ft., 1.1875, T. Kirk (W); Clarence Valley, 3,000 ft., 1.1893, T. F. Cheeseman (A); western region of Amuri Co., W. G. Morrison (C, W); Hanmer Plains, Christenson (W); Mt. Percival, Amuri Co., about 4,000 ft., 10.2.1914, W. G. Morrison (W); Amuri. T. Kirk (W, MEL); *Mt. Halfmoon, Dillon R., about 5,000 ft., 12.1926, A. Wall (C);

*Upper Hurunui R., 10.1913, A. Wall (C); Bealey, Mingha, 1.1.1928 (C); Bealey Valley, near Mingha Junction, "river bed", 15.1.1928, W. R. B. Oliver (W); *Mingha Valley, "Beech Forest", 15.1.1928, W. R. B. Oliver (W); slopes of Rolleston, 4,500 ft., 25.1.1929, L. Cockayne (C); Blimit Cirque, 16.2.1928 (C); *Blimit Cirque, 29.1.1928, W. R. B. Oliver (W); Rough Crk., Avalanche Ridge, 4,500 ft. (C); Graham's Creek, 1.1928, M. Laing (C); mountain above Avalanche Gully, 17.1.1928, W. R. B. Oliver (W); Broken River, D. Petrie (W); *dry banks of Broken R., 11.1936, N. Lothian (MEL); Craigie Burn Mts., Canterbury Alps, 1.1893, D. Petrie (W); *Canterbury Alps, N. T. Carrington (W); Canterbury Plains, T. Kirk (A,* MEL); Canterbury, J. Haast (MEL); *Southern Alps, 2-5,000 ft. (W); Thomas River, Canterbury, T. Kirk (C); Burnham (W); Ashburton Mts., T. H. Potts (W); Ashburton, 11.1921, H. H. Allan (A); vicinity of Ashburton, H. H. Allan (A); *Mt. Potts, R. M. Laing (NSW); Woolshed Creek, Mt. Somers, 4.1926, A. Wall (C); Little Spur Mt., Upper Rangitata, 5,000 ft., 1.1921, A. Wall (C); *Mt. Peel, Canterbury, H. H. Allen (W); *Mt. Peel, "grassland. Abundant in tussock, 1,500-3,000 ft.", H. H. Allan (W); *slope of Mt. Peel, "about 600 metres, in tall tussock land", 2.1.1919, H. H. Allan (C); Ball Spur, above Tasman Glacier, 1.1924, A. Wall (C); Lake Tekapo, 5,000 ft., 1.1853, T. F. Cheeseman (A); Tasman Valley, north of Lake Pukaki, 13.2.1911, D. Petrie (W); *mountains near Hunter River, Lake Hawea, 1920, R. A. Wilson (W); Mt. Arnould, head of Lake Hawea, 1920, R. A. Wilson (W); Lake Ohau (W); mountains on Temple Crk., Lake Ohau, about 5,000 ft., 1.1931, A. Wall (C); Mt. Turner, 1.1926, A. Wall (C); *Lake Wanaka (W); *Mt. Ernslaw, 5,000 ft., E. Phillips Turner (A); Mt. Pisa, about 4,500 ft., D. Petrie (W); Mt. St. Bathans, about 3,000 ft., 12.1892, D. Petrie (W); Mt. Cadrona, D. Petrie (W); Mt. Cadrona, about 4,500 ft., D. Petrie (C, W); Ben Lomond, Lake Wakatipu, 1.1932, A. Wall (C); *Remarkables, east side of Lake Wakatipu, about 4,000 ft., 2.1886, D. Petrie (W); Remarkables, 5,500 ft., D. Petrie (W); Remarkables, 5,000 ft., 1.1923, A. Wall (C); *Cromwell, 12.1925, A. Wall (C); Matahanui, Manukerikia Plain, 11.1892, D. Petrie (W); Kurow, Waitaki River, 4.1892; 10.1893, D. Petrie (W); *Mt. Ida, Maniototo Co., 10.1.1911, D. Petrie (W); Mt. Ida, 12.1908, B. C. Aston (W); Ngapara, D. Petrie (W); Ngapara, L. Cockayne (W); Earnsleugh flat, near Clyde, D. Petrie (W); *Rock and Pillar Range, 12.1908, B. C. Aston (W); Kyeburn Crossing, Maniototo Plain, about 1,400 ft., 11.1892, D. Petrie (W); Macrea's Flat, Petrie (W); Macrea's Flat, about 1,800 ft., D. Petrie (W); near Green Island, Dunedin, "sea cliffs", D. Petrie (W); Old Man Range, about 5,000 ft., 2.1920, A. Wall (W, C); *Old Man Range, 2.12.1923, J. Speden (W); *Old Man Range, 1.1924, J. Speden and H. L. Darton (W); *Old Man Range, 2,000-4,000 ft., D. Petrie (W); *Strath Taieri, D. Petrie (W); *Bluff (W).

The following localities have not been traced: Trelissick Basin, T. Kirk (W); Tinker's Diggings, 1,000 ft., 11.1892, D. Petrie (W); Mt. Princess, about 3,000 ft., 1.1927, A. Wall (C).

Since syntype specimens of all varieties are in the herbarium of the Royal Botanic Gardens, Kew, they have not been examined by the author, and type selection has therefore not been made. There is no doubt, however, as to the identity of this species.

B. radicata var. β was described by Hooker from a single specimen ("Southern Is., Lyall") with the note "var. β looks like a different species, but I have only one small specimen and that in young flower only". Later (1864), and apparently without having obtained further specimens, Hooker raised this variety to specific rank as *B. pinnata* with the comment "I have but one specimen of this pretty little plant". The description is, of necessity, limited to vegetative characters. The practice of describing any new category on a single incomplete specimen needs no comment. Hooker's specimen is now at Kew, but several plants which agree perfectly with his description have been examined, and the fruits are identical with those of *B. Sinclairii*.

The extremely variable nature of the leaves of this species is reflected in the long synonymy listed above. This variation from entire to almost pinnate margins is shown to be continuous (Text-figs. 9–24), and it is not uncommon for specimens to bear both entire and divided leaves in varying proportions. Five specimens were examined from Cromwell (12.1925, A. Wall), one of which bore exclusively the almost pinnate leaves of Hooker's var. *pinnata*, another bore the usual pinnatifid leaves, and the remaining three specimens bore both pinnatifid and pinnate leaves. In view of this, to give separate status to each peak of variation is a fruitless attempt to discover vegetative stability where none exists, and this entire population is now grouped under one name.

In his original description of *B. Sinclairii*, Hooker describes the pappus as being "minute, bristly or 0". Examination of a long series of specimens shows that while in mature fruit, the pappus is frequently lacking or poorly developed, in younger fruit on the same plant it is invariably well developed. The pappus is therefore commonly deciduous, seldom persisting into the mature condition.

3. BRACHYCOME LINEARIS (Petrie) Druce. Bot. Exc. Club, iv (1914–1916), 614.

(Text-figs. 3, 6, 8.)

Synonymy: *Lagenophora linearis* Petrie, *Proc. N.Z. Inst.*, xxv (1892), 271.
Brachycome lineata T. Kirk, St. Fl. N.Z. (1899), 259.
Lectotype: Lake Te Anau, 1.1886, D. Petrie (A).
Lectoparatypes: Three, Lake Te Anau, 1.1886, D. Petrie (A); *three (W).

Erect glabrous annuals, 1·7–3·4 cm. high. Leaves radical, linear to narrow oblanceolate, obtuse, up to 2·3 cm. long, 1·2 mm. broad, entire or rarely with a single linear tooth. *Scapes* 1–6, glabrous, naked, filiform. *Inflorescences* 2·5–3 mm. diameter. *Involucral bracts* 8–12, 1–1·6 mm. long, 0·6–0·9 mm. broad, ovate to oblong, obtuse to subacute with minutely torn-ciliate margins. *Ray florets* about 12, the rays 1–1·2 mm. long, 0·2–0·3 mm. broad, apparently white. *Receptacle* 1·5 mm. broad, 0·2 mm. high, very slightly convex. *Fruit* 1–1·2 mm. long, 0·5–0·6 mm. broad, narrow oblong, glabrous, golden brown, turgid at maturity. Pappus white, microscopic, deciduous.

Range: Apparently confined to the type locality.

Specimens examined: Lake Te Anau, 1.1886, D. Petrie (lectotype and three lectoparatypes, A); three lectoparatypes (W); shores of Lake Te Anau, at foot of lake, 1.1892, D. Petrie (W); Lake Te Anau, 1.1932, A. Wall (W).

B. linearis is known only from Lake Te Anau, though the possibility cannot be ignored that owing to its small size its presence elsewhere has been overlooked. It shows no close affinity with other described species, though in the glabrous and somewhat flattened fruit it is nearest to *B. Sinclairii*. *B. linearis* may represent a relic of the primitive stock persisting in isolation, but if so, similar forms should reasonably be expected to occur in similar pockets elsewhere. If the distribution of this species is restricted to its present known locality then it probably originated there directly from the ancestral stock as a mutation and its lack of variation suggests that its chances of survival are small.

The following three species were described in 1943, the types of which are, according to the original descriptions, in the Herbarium of the Plant Research Bureau, Wellington, but since it has not been possible to examine these specimens the original descriptions are merely transcribed with comments.

Brachycome humile. Simpson and Thomson, *Trans. Roy. Soc. N.Z.*, lxxiii, Pt. 3, 1943.

"A very small tufted plant. Leaves radical, 1–2 cm. long, linear spathulate, 1 mm. broad at the tip, entire, or with 1–2 notches on one or both margins towards the tip, rather fleshy, gland dotted or minutely pubescent. Scapes 1 or more from the base, ± 3 cm. long, almost filiform, glabrous below, with glandular hairs at the tips; heads solitary, ± 6 mm. diam.; involucral bracts 9–10, lanceolate; margins purplish, scarious. Ray florets about 12, twice as long as the involucral bracts, oblong obtuse, yellowish and pilose at the base. Achenes obovate, slightly compressed, with a few stiff hairs; pappus of small scales.

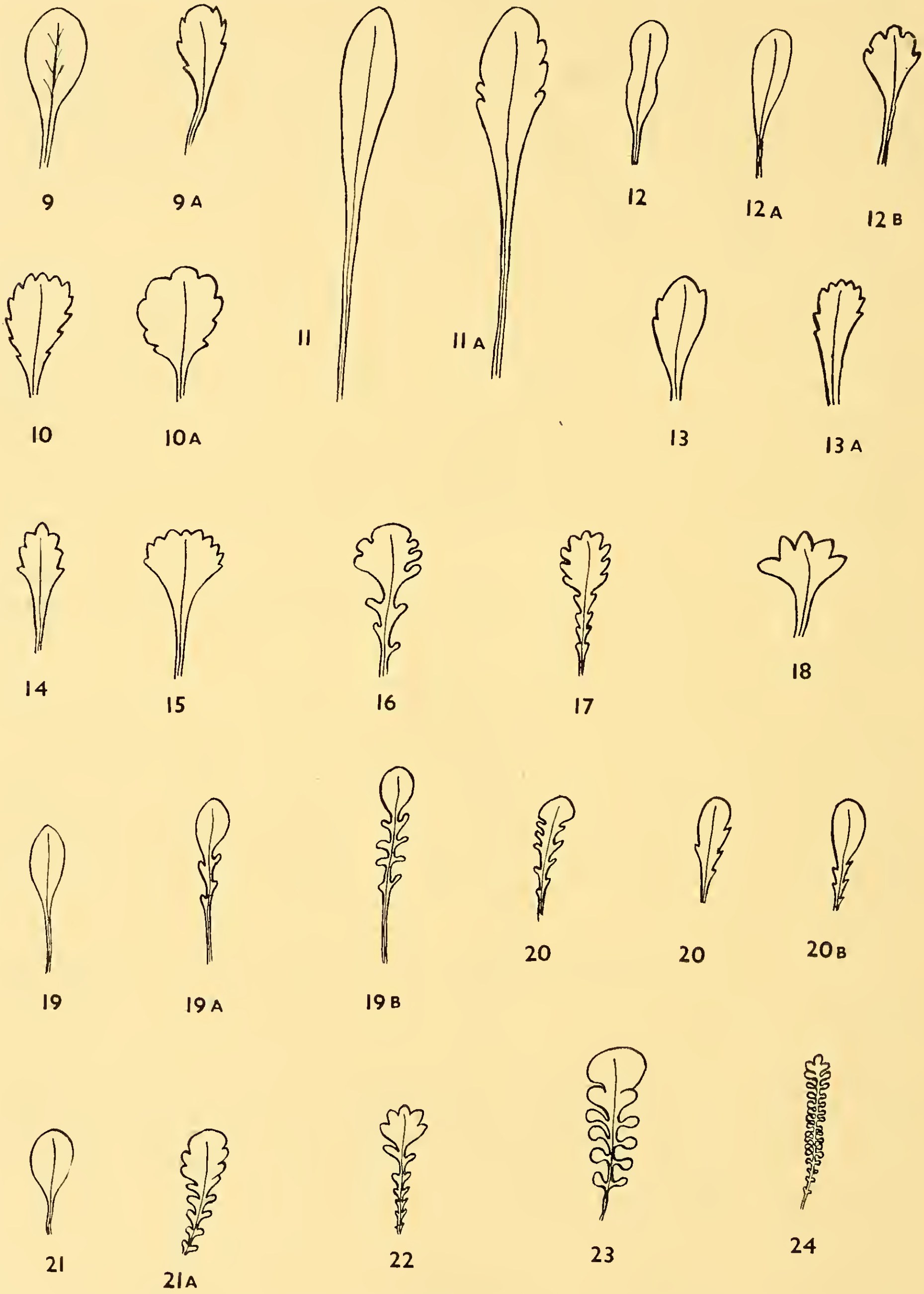
"*Habitat*: Snow hollows.

"Type specimen from the summit of Rock and Pillar Range, Otago, in the Herbarium, Plant Research Bureau, Wellington. Smaller in size than *B. linearis* and differing by larger flowers, longer ray florets, by the hairs on the corolla and achenes and the distinct pappus scales."

If this species is as close to *B. linearis* as the description suggests, it may well represent another relic of the ancestral stock which, in isolation, has developed along slightly different lines to the present *B. linearis* population. The presence of stiff hairs on the fruit, however, is an unusual feature, unique among New Zealand species, and what is meant by "distinct pappus scales" is, in the absence of a text-figure, obscure.

Brachycome longiscapa Simpson and Thomson, *Trans. Roy. Soc. N.Z.*, lxxiii, Pt. 3 (1943).

"Rootstock short, stout, with many slender roots, branching closely to form small dense clumps. Leaves radical, 4–6 cm. long, 8–12 mm. broad, spathulate or linear spathulate, rather fleshy, darkish green, minutely or mealy pubescent; petiole stout, flattened above, rounded beneath, widened at the base, as long as or longer than the blade; blade obovate, rounded or blunt at the tip, narrowed to the petiole, entire or the margin very irregularly lobed or toothed or pinnatifid, the midrib sunken above, prominent beneath. Scapes strict, long, 10–20 cm., slender, pale brown or purplish, naked, glabrous at the base, closely covered towards the tip with short, stout, glandular hairs. Heads 1·5 cm. diam.; involucral bracts 4 mm. long, in two series, oblong, reddish, glandular hairy, with the margins scarious, rough and blackened; ray florets 8 mm.



Text-figures 9-24.

Leaf variation in *B. Sinclairii*. Leaves of the same ordinal number are taken from the same plant. × ½.

long, numerous, linear obovate, obtuse; disc florets green. Achenes obovate, compressed, with minute pappus scales.

"*Habitat*: Grassland.

"Type specimen from the Upper Shag Valley, near Kyeburn, in the Herbarium, Plant Research Bureau, Wellington.

"A common grassland plant in the valleys of the Shag and Waitaki Rivers and their tributaries, Lindis Pass, L. Pukaki, etc. The irregularly margined, minutely pubescent, darkish green leaves, and the long, slender scapes are unlike those of any other species."

The vegetative characters as listed in the original description fall within the limits of variation of *B. Sinclairii*, and although certain of these are referred to by the authors as unlike those of any other species, in this revision vegetative characters alone are not considered sufficient to warrant specific status. In the description of the fruit the pappus is said to consist of minute scales whereas that of *B. Sinclairii* is conspicuous but commonly deciduous at maturity. It is possible that in the fruit examined by the authors of *B. longiscapa* the pappus had already broken off leaving the persistent bases of the original bristles which were then described as scales.

Brachycome montana Simpson, *Trans. Roy. Soc. N.Z.*, lxxv (1945), 197.

"Rootstock short, 2–3 mm. diam., with many slender roots, branching closely to form small dense clumps. Leaves radical, 2–3 cm. long, 4–8 mm. broad, linear obovate-spathulate, rather fleshly, greyish green, surfaces and margins closely dotted with stiff glandular hairs; petiole as long as or twice as long as the blade, flat above and grooved, rounded beneath; blade differing in shape and in the division of its margins, rounded or narrowed to the petiole, sometimes almost entire, more usually with 2–7 irregularly disposed, conspicuous, rounded lobes. Scapes 4–6 cm. long, rather stout, pale brown, naked or with a single linear, acute bract, glandular hairy as the leaves. Heads 1 cm. diam., involucral bracts 5 mm. long, in three series, linear oblong, acute, glandular hairy, with scarious tips; ray florets 5 mm. long, in two series, linear obovate, rounded at the tip, much recurved, disc florets numerous, yellowish. Achenes.

"*Habitat*: Type specimen from Mount Cardrona, Central Otago, collected by Mr. D. Leigh and cultivated by Mr. W. B. Brockie at the Botanic Gardens, Christchurch, in the Herbarium, Plant Research Bureau, Wellington.

"The diversiform, greyish green, glandular hairy and somewhat fleshy leaves separate the species immediately from others of the genus."

This description, being devoted exclusively to vegetative characters, is of little diagnostic value, and could apply to certain variations of *B. Sinclairii*. Apart from the word "Achenes", no mention is made of the fruit.

The following species are listed as nomena dubia, with transcriptions of the original descriptions:

B. simplicifolia Armst., *Trans. N.Z. Inst.*, xiii (1881), 338.

"A small tufted branching perennial herb, 3–4 in. high, stout and leafy. Radical leaves 2–3 in. long, linear-spathulate or linear, obscurely 3-nerved, obtuse, with broad membranous sheathing petioles and revolute margins; quite entire, except the sheaths which are somewhat shaggy, glandular-pubescent, or glabrous. Scapes 1–3 in. high, pubescent, 1–2 flowered, striated or channelled. Cauline leaves or bracts few, 1 in. long, linear-spathulate, obtuse, subamplexicaul, glandular-pubescent, more distinctly nerved than the leaves. Heads half an inch in diameter. Involucral scales 12–16 in one series, or with a second outer series of 2–3 scales only, linear-lanceolate or oblong, acute, distinctly 3-nerved, coriaceous, appressed, with purplish membranous margins. Ray florets short, oblong, obtuse, few or absent, white. Disc florets tubular, 3–5 toothed. Pappus entirely absent. Achenes compressed, one-tenth inch long, glandular-pubescent, thickened at the tips. Receptacle very narrow, convex, papillose.

"*Habitat*: Nelson Provincial District. Mr. C. W. Jennings, Marlborough Provincial District (1869), J.B.A."

Cheeseman (1925) notes: "*B. simplicifolia* J. B. Armstr. is quite unknown to me, and there are no specimens in any public collection in the Dominion. It probably does not belong to the genus." Armstrong's private herbarium is now housed in the Canterbury Museum, Christchurch, but contains no such specimens. It can only be assumed that all syntypes have been lost, and consequently there no longer exists any foundation for the name.

B. alpina W. Colenso, *Trans. N.Z. Inst.*, xxx (1898), 271.

"Plant small, slender, slight, hairy, simple (sometimes 2-branched); rhizome 3 in. (and more) long, filiform. Leaves radical, scattered, suborbiculate, 4 lines diameter, tapering, faintly crenate lobed, lobes few, their tips pointletted, hardened from vein produced, dark-green above, paler below, membraneous, much veined; hairs sprinkled, appressed, substrigillosa, white, flat, subulate, strangulated, thicker on upper surface. Petioles very slender, 1 in. long, canaliculate and dilated at base with membranous margins, and patent hairs, dark purple-brown. Scape erect, 3–3½ in. long, filiform, with 2–3 small linear distinct bracts, glabrous but pubescent towards tip. Head small, drooping, 2 lines diameter. Involucral bracts numerous, sub 20, linear dark-green with a thick purple central nerve, margins membraneous, white; tips acute, jagged. Florets few; ligulae white, revolute. Receptacle broad, naked, shining, alveolate. Pappus 0. Achene sublanceolate, one-tenth inch long, slightly glandular, viscid.

Habitat: Ruahine Mountain Range, east side; Feb., 1898; Mr. H. Hill."

This species is not mentioned by either Kirk or Cheeseman in their floras and no specimens have been traced.

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CORRIGENDA TO REVISION OF THE GENUS BRACHYCOME CASS. PART I.

(Volume lxxiii, Parts 3–4.)

P. 171. The record of *B. cardiocarpa* from Queensland should be deleted. Southport, in this case, refers to the Tasmanian locality.

P. 223. Last line. For Nochnagar read Lochnagar.

P. 228. Fourth line from the end of page. For *obtuse* to *entire* read *obtuse and entire*.

P. 240. For map 24 *B. longiscape* read map 24 *B. Readeri*.